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CLAIMS

[Claim(s)]

[Claim 1] They are the trimming devices of the vertical-movement aperture in which the ***** upper and lower sides to a keeping means fish with an aperture shoji and make a ***** this shoji stand it still in the location of arbitration, and the door post of a sash are possible, and tilting into which the sliding object which is hung by the above-mentioned keeping means and supports an aperture shoji provides, and a braking means brake this sliding object automatically when the adjustment means and the aperture shoji which adjust the keeping force of a keeping means proper rotate the above-mentioned sliding object horizontally from a perpendicular direction is built is possible.

[Claim 2] The cylinder by which the aforementioned keeping means is fixed to the door post of a sash, and the nut with which only the revolution was connected with this cylinder possible, The torsion spring which it is inserted into the above-mentioned cylinder, and an upper bed fixes in a cylinder, and a soffit fixes [torsion spring] respectively in a nut, and makes the aperture shoji of vertical movement stand it still in the location of arbitration, Trimming devices possessing the spiral lever which was inserted possible [vertical movement] into torsion spring, screwed with the above-mentioned nut, rolled and fastened torsion spring through the nut at the time of descent, went up through the nut by rewinding [of torsion spring], and was connected with said sliding object of the vertical-movement aperture in which tilting according to claim 1 is possible.

[Claim 3] The adjustment means of the aforementioned keeping means are the trimming devices of the vertical-movement aperture possible in tilting according to claim 2 which provides in the braking spring which the adjustment shaft which is connected with said spiral lever and twists said torsion spring while only a revolution is included in said sliding object possible, and this adjustment shaft are looped around in the shape of adhesion, and an end fixes on the above-mentioned sliding object, and allows a revolution of the adjustment shaft of only the direction of a volume bundle of torsion spring.

[Claim 4] said sliding — the trimming devices possessing the braking member which follows a revolution of the revolving shaft connected with an aperture shoji while the braking means of the body and its function is built into the above-mentioned sliding object, and the revolving shaft at the time of being included in the above-mentioned sliding object and an aperture shoji tilting horizontally from a perpendicular direction, and gives damping force to a sliding object of the vertical-movement aperture in which tilting according to claim 3 is possible.

[Claim 5] Said revolving shaft has a cam side and said braking member has the cam abutment which receives the above-mentioned cam side. A revolution of a revolving shaft moves a braking member up and down. A slanting slideway on said sliding object again at the above-mentioned braking member this slideway top Trimming devices of the vertical-movement aperture in which tilting according to claim 4 is possible which make between the braking location where the sliding surface which slides aslant is prepared respectively, and the above-mentioned braking member is forced on it by the door post of a sash in the case of the vertical movement, and the locations where the forcing is canceled reciprocate also in a longitudinal direction.

[Claim 6] Trimming devices possessing a locking means to be formed in the top rail of an aperture shoji and to prevent tilting of this aperture shoji of the vertical-movement aperture, in which tilting according to claim 5 is possible.

[Claim 7] They are the trimming devices of the vertical-movement aperture which has the field which the above-mentioned locking rod makes the cylinder of the aforementioned keeping member a slideway, and fits in possible [sliding] by said locking means possessing the spring which energizes the case fixed to the top rail of an aperture shoji, the locking rod incorporated possible [sliding in this case], and this locking rod in a projection location, and is pinched in the guide rail of the door post of a sash, and will be in a locking condition and in which

tilting according to claim 6 is possible.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[Industrial Application]

This invention relates to the trimming devices of the vertical-movement aperture which can be tilted.

[Description of the Prior Art]

In the vertical-movement aperture which can be tilted, the trimming devices possessing a braking means to give damping force to this aperture shoji in the case of tilting of the trimming devices possessing the adjustment means of the keeping force of the keeping means for aperture shojis and this means, and the above-mentioned keeping means and an aperture shoji, and to fix to the location are known.

[Problem(s) to be Solved by the Invention]

The keeping collapses. in the above-mentioned conventional trimming devices, if it fishes with a keeping means and a ***** shoji is made to tilt since the former lacks the braking means Since a large intermediary shoji goes up more relatively [the raising force of a **** means] than the reduction force of a shoji and the latter lacks the adjustment means At the point that adjustment of change of the force of a keeping means and the keeping means according a shoji to adjustment of the keeping means after ***** or an activity in a sash cannot be performed, a problem is ***** to anything.

When an aperture shoji is made to tilt, this invention tends to offer the convenient trimming devices at which damping force is automatically given to this shoji and keeping of an aperture shoji is maintained, while an aperture shoji and a keeping means can use adjustment of the keeping means for the apertures of vertical movement as a sash also in the state of assembly ****.

[The means for solving a technical problem]

the sliding object which the ***** upper and lower sides to the keeping means for aperture shojis and the door post of a sash are possible, and is hung by the above-mentioned keeping means, and supports an aperture shoji in order that this invention may attain the above-mentioned object — providing — the above-mentioned sliding object — the adjustment means of the keeping force of a keeping means, and tilting of an aperture shoji — therefore, a braking means brake a sliding object automatically is incorporated.

[Example]

It explains concretely, referring to a drawing per example of this invention below.

An outside aperture shoji (1) and an inside aperture shoji (2) carry out ***** vertical movement the guide rail (5) of the door post (4) of a sash (3), and (5), an outer window shoji closes the upper part of an aperture, and closing and a bottom aperture shoji close the lower part of an aperture. Each aperture shoji (1) and (2) are hung by the door post (4) in the state of keeping by the keeping member (6) which hangs each other and is used as a means, and (7), and they stand it still in the location of arbitration.

Since the structure of a keeping member (6) and (7) is the same only by dimensions differing so that an internal and external shoji (1) and (2) may be suited, the thing for inside shojis (2) is mainly explained. The same is said of other members.

The cylinder by which it hangs each other, a member (6) and (7) are prolonged in the vertical direction, and an upper bed is connected with a door post (4) by the pin (8) (9), The nut (10) with which only the revolution was connected with the soffit of this cylinder possible, and the spiral lever which it is inserted possible [vertical movement] into the above-mentioned cylinder, and the soffit penetrates a nut (10) in the state of screwing, and projects from the soffit of a cylinder (9) to the method of outside (11), The torsion spring (15) which has the upper bed (13) around which the spiral lever (11) was looped within the above-mentioned cylinder (9), and which fixed through the spring stop member (12) in the cylinder (9), and the soffit (14) which fixed in the nut (10) is

provided. A spiral lever (11) rotates a nut (10) by the drop, and rolls and fastens torsion spring (15), and torsion spring (15) reverses a nut (10) by the rewinding, and it commits it so that a spiral lever (11) may be raised. A spiral lever (11) is connected with a shoji (1) and (2), and if the torque which balances with torsion spring (15) in a shoji (1), (2), and its maximum climb location is given, torsion spring (15) can always be hung with a shoji, can make a ***** shoji able to stand it still in the location of arbitration, and, moreover, can make a shoji go up and down by the small force.

The sliding object (16) is mainly constituted from a tubed part (18) formed in one by the part (17) and this part of a **** rectangular parallelepiped, and is built into them possible [sliding in the guide rail (5) of the door post (4) of a sash].

Rectangular Parallelepiped Part (17) Has Sliding Slot (20) of the Vertical Direction Formed in Parallel Flat Surface (19) Mutually [the Both Sides], Fits into Flange (21) Which this Sliding Slot Expects to Effective Area of Guide Rail (5) of Door Post (4), and (Drawing 9 R Drawing) Possible [Sliding], and Makes Guide Rail (5) Carry Out ***** Vertical Movement of the Sliding Object (16). The flat surface (22) which intersects perpendicularly with the both-sides flat surface (19) of a rectangular parallelepiped part (17) is connected so that it has a bearing hole (23) and (drawing 8) in the lower part, and fitting of the revolution of a revolving shaft (24) may be made free into this bearing hole, fitting of the connection arm (26) may be carried out to the communicating pore (25) of this revolving shaft and a connection arm and a revolving shaft may be rotated in one. A connection arm (26) fixes from the soffit of the stile (27) of a shoji (2) by cotton intermediary ***** to a kicking rail (28), it makes a shoji a center of rotation and a revolving shaft (24) is tilted to an interior-of-a-room side from a vertical position to a horizontal position in it. By the tilting, the lateral surface of the glass (29) of a shoji (2) can be cleaned safely [in an interior-of-a-room side] and easily. The metal back up plate (30) was included in the upper half, and the rectangular parallelepiped part (17) has reinforced the sliding object made of synthetic resin (16) with which smooth sliding is obtained.

The shank (34) of a soffit has projected a part for a tubed part (18) under [for a tubed part (18)] while having the bearing hole (31) penetrated in the vertical direction, and (drawing 8), inserting the adjustment shaft (32) used as an adjustment means for torsion spring (15) in this bearing hole pivotable and the shank (33) of the upper bed projecting from a part for a tubed part (18) to the upper part. A shank (35) to the shank (33) of the upper bed to which a **** cause shaft (32) fits into the bearing hole (31) for a tubed part (18) is the same diameter, and the downward shank (34) is formed in the bigger diameter than a bearing hole (31) from the bearing hole (18) (drawing 8). When an adjustment shaft (32) is inserted from a lower part into a bearing hole (31), a shank (34), (35) The step (36) of a between dashes against the soffit peristome (37) of a bearing hole (18). The migration to the upper part of an intermediary adjustment shaft (32) Stop, The circular sulcus (39) of the adjustment shaft (32) corresponding to the location of the upper bed peristome (38) of a bearing hole (31) is made to carry out fitting of the lock ring (40), migration in the lower part of an adjustment shaft (32) is prevented, and only a revolution assembles an adjustment shaft (32) possible in a bearing hole (31). As for the upper bed of an adjustment shaft (32), the slot (41) of a cross-joint form and (42) are prepared. The soffit of a spiral lever (11) is inserted in one slot (41), it connects with the hole (44) of a spiral lever, and the screw-thread hole (45) of an adjustment shaft (32) mutually through a set screw (43), and the pin (46) attached in the right angle is inserted in a spiral lever (11) in the slot on another side (42). Thereby, while an adjustment shaft (32) is hung by the spiral lever (11), a sliding object (16) is hung, a sliding object (16) supports a shoji (2) through a revolving shaft (24) and a connection arm (26), and the shoji (2) is lifted by the keeping member (7).

As an adjustment means of the torque of the torsion spring (15) of a keeping member (7), a coiled form braking spring (47) is looped around in the shape of adhesion, the upper bed (48) inserts in the hole (49) for a tubed part (18), and is combined with the surroundings of the shank (34) of the above-mentioned adjustment shaft (32), and the free condition is made to expect a soffit (50) to the periphery of the flange (51) of the soffit of an adjustment shaft. If the edge of a blade, such as a driver, is inserted in an adjustment shaft (32) at the slotted hole (graphic display abbreviation) of the soffit side and the turning effort of the direction of an arrow head (A) is given, the diameter is expanded, the damping force by friction to an adjustment shaft (32) is canceled, and a braking spring (47) can rotate an adjustment shaft (32) in this direction (A). If the turning effort of an arrow head (A) and hard flow is given to an adjustment shaft (32), the diameter cannot contract, damping force by friction to an adjustment shaft (32) cannot increase, and a braking spring (47) cannot rotate an adjustment shaft (32) in hard flow. That is, the above-mentioned braking spring (47) has the function of an one way clutch. Therefore, if an adjustment shaft (32) is turned in the direction of an arrow head (A), the torque of torsion spring (15) will increase. If the external force of the direction of an arrow head (A) is given with a driver etc. to the soffit (50) of

a braking spring (47) when torsion spring (15) is twisted too much, the diameter of this braking spring will be expanded, the damping force of the braking spring to an adjustment shaft (32) will be canceled, and the torque of an intermediary spring [an adjustment shaft (32)] (15) possible [an inversion] will decrease. Thus, the torque of torsion spring can be adjusted so that it may balance with a shoji proper. In addition, arrange two or more stop slots (52) at equal intervals to a flange (51), and the arm (54) which has the projection (53) which engages with this stop slot is combined with the soffit of a rectangular parallelepiped part (17) at one. The case where the torque which balances with the business of various weight will be given to torsion spring (15) if it is constituted so that the click motion of the adjustment shaft (32) can be carried out, When keeping tunes finely, it can be made quantitative by the number of click motion, it is convenient, and since it is accompanied by click motion also when canceling the damping force of a braking spring (47) and reversing an adjustment shaft (32), a torque can be decreased gradually and it is much more convenient.

As a braking means to follow the tilting and to give damping force automatically to an aperture shoji, a lateral slot (55) is formed in the flat surface (22) of the rectangular parallelepiped part (17) of a sliding object (16), opening of the ends is carried out to the flat surface (19) of the both sides of a sliding object, and the amount of [of a slot (55)] center section is further open for free passage to the bearing hole (23). A braking member (56) is included in this slot (55), and a revolution of a revolving shaft (24) makes this braking member follow in a braking location. As a braking member (56) is shown in drawing 7 , a rectangular parallelepiped part (57) and the braking part (58) of the **** right triangle which protruded on the both sides at one are provided. A rectangular parallelepiped part (57) has the arc side (59) which fits into a part for the tubed part of a sliding object (16) (18), the arc side (61) which fits into the flange (60) of a revolving shaft (24), and the cam abutment (62) of a water plane. A revolving shaft (24) has the flange (66) of the back end of the cam side (65) formed at the flat surface (64) which cut and lacked a periphery side (63) and its part in common, and a flat surface (64). the cam side (65) of a revolving shaft (24) -- the cam abutment (62) of a braking member (56) -- biting -- a revolution of ***** and a revolving shaft (24) -- therefore, a braking member (56) is moved up and down.

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TECHNICAL FIELD

[Industrial Application]

This invention relates to the trimming devices of the vertical-movement aperture which can be tilted.

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PRIOR ART

[Description of the Prior Art]

In the vertical-movement aperture which can be tilted, the trimming devices possessing a braking means to give damping force to this aperture shoji in the case of tilting of the trimming devices possessing the adjustment means of the keeping force of the keeping means for aperture shojis and this means, and the above-mentioned keeping means and an aperture shoji, and to fix to the location are known.

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EFFECT OF THE INVENTION

[Effect of the Invention]

An adjustment means to adjust the keeping force of the above-mentioned keeping means to the sliding object which the ***** upper and lower sides to the door post of an aperture are possible for this invention, and is hung with a keeping means, and supports an aperture shoji, Since a braking means to brake the above-mentioned sliding object automatically is incorporated when an aperture shoji makes it tilt horizontally from a perpendicular direction adjustment of a keeping means -- an aperture shoji and a keeping means -- a sash -- an assembly **** condition -- even if -- while being able to carry out, when an aperture shoji is made to tilt, damping force gives this shoji automatically -- having -- keeping GA of an aperture shoji -- ** -- ** -- it is convenient.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention]

The keeping collapses. in the above-mentioned conventional trimming devices, if it fishes with a keeping means and a ***** shoji is made to tilt since the former lacks the braking means Since a large intermediary shoji goes up more relatively [the raising force of a **** means] than the reduction force of a shoji and the latter lacks the adjustment means At the point that adjustment of change of the force of a keeping means and the keeping means according a shoji to adjustment of the keeping means after ***** or an activity in a sash cannot be performed, a problem is ***** to anything.

When an aperture shoji is made to tilt, this invention tends to offer the convenient trimming devices at which damping force is automatically given to this shoji and keeping of an aperture shoji is maintained, while an aperture shoji and a keeping means can use adjustment of the keeping means for the apertures of vertical movement as a sash also in the state of assembly ****.

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MEANS

[The means for solving a technical problem]

the sliding object which the ***** upper and lower sides to the keeping means for aperture shojis and the door post of a sash are possible, and is hung by the above-mentioned keeping means, and supports an aperture shoji in order that this invention may attain the above-mentioned object -- providing -- the above-mentioned sliding object -- the adjustment means of the keeping force of a keeping means, and tilting of an aperture shoji -- therefore, a braking means brake a sliding object automatically is incorporated.

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EXAMPLE

[Example]

It explains concretely, referring to a drawing per example of this invention below.

An outside aperture shoji (1) and an inside aperture shoji (2) carry out ***** vertical movement the guide rail (5) of the door post (4) of a sash (3), and (5), an outer window shoji closes the upper part of an aperture, and closing and a bottom aperture shoji close the lower part of an aperture. Each aperture shoji (1) and (2) are hung by the door post (4) in the state of keeping by the keeping member (6) which hangs each other and is used as a means, and (7), and they stand it still in the location of arbitration.

Since the structure of a keeping member (6) and (7) is the same only by dimensions differing so that an internal and external shoji (1) and (2) may be suited, the thing for inside shojis (2) is mainly explained. The same is said of other members.

The cylinder by which it hangs each other, a member (6) and (7) are prolonged in the vertical direction, and an upper bed is connected with a door post (4) by the pin (8) (9), The nut (10) with which only the revolution was connected with the soffit of this cylinder possible, and the spiral lever which it is inserted possible [vertical movement] into the above-mentioned cylinder, and the soffit penetrates a nut (10) in the state of screwing, and projects from the soffit of a cylinder (9) to the method of outside (11), The torsion spring (15) which has the upper bed (13) around which the spiral lever (11) was looped within the above-mentioned cylinder (9), and which fixed through the spring stop member (12) in the cylinder (9), and the soffit (14) which fixed in the nut (10) is provided. A spiral lever (11) rotates a nut (10) by the drop, and rolls and fastens torsion spring (15), and torsion spring (15) reverses a nut (10) by the rewinding, and it commits it so that a spiral lever (11) may be raised. A spiral lever (11) is connected with a shoji (1) and (2), and if the torque which balances with torsion spring (15) in a shoji (1), (2), and its maximum climb location is given, torsion spring (15) can always be hung with a shoji, can make a ***** shoji able to stand it still in the location of arbitration, and, moreover, can make a shoji go up and down by the small force.

The sliding object (16) is mainly constituted from a tubed part (18) formed in one by the part (17) and this part of a **** rectangular parallelepiped, and is built into them possible [sliding in the guide rail (5) of the door post (4) of a sash].

Rectangular Parallelepiped Part (17) Has Sliding Slot (20) of the Vertical Direction Formed in Parallel Flat Surface (19) Mutually [the Both Sides], Fits into Flange (21) Which this Sliding Slot Expects to Effective Area of Guide Rail (5) of Door Post (4), and (Drawing 9 R > Drawing) Possible [Sliding], and Makes Guide Rail (5) Carry Out ***** Vertical Movement of the Sliding Object (16). The flat surface (22) which intersects perpendicularly with the both-sides flat surface (19) of a rectangular parallelepiped part (17) is connected so that it has a bearing hole (23) and (drawing 8) in the lower part, and fitting of the revolution of a revolving shaft (24) may be made free into this bearing hole, fitting of the connection arm (26) may be carried out to the communicating pore (25) of this revolving shaft and a connection arm and a revolving shaft may be rotated in one. A connection arm (26) fixes from the soffit of the stile (27) of a shoji (2) by cotton intermediary ***** to a kicking rail (28), it makes a shoji a center of rotation and a revolving shaft (24) is tilted to an interior-of-a-room side from a vertical position to a horizontal position in it. By the tilting, the lateral surface of the glass (29) of a shoji (2) can be cleaned safely [in an interior-of-a-room side] and easily. The metal back up plate (30) was included in the upper half, and the rectangular parallelepiped part (17) has reinforced the sliding object made of synthetic resin (16) with which smooth sliding is obtained.

The shank (34) of a soffit has projected a part for a tubed part (18) under [for a tubed part (18)] while having the bearing hole (31) penetrated in the vertical direction, and (drawing 8), inserting the adjustment shaft (32)

used as an adjustment means for torsion spring (15) in this bearing hole pivotable and the shank (33) of the upper bed projecting from a part for a tubed part (18) to the upper part. A shank (35) to the shank (33) of the upper bed to which a **** cause shaft (32) fits into the bearing hole (31) for a tubed part (18) is the same diameter, and the downward shank (34) is formed in the bigger diameter than a bearing hole (31) from the bearing hole (18) (drawing 8). When an adjustment shaft (32) is inserted from a lower part into a bearing hole (31), a shank (34), (35) The step (36) of a between dashes against the soffit peristome (37) of a bearing hole (18). The migration to the upper part of an intermediary adjustment shaft (32) Stop, The circular sulcus (39) of the adjustment shaft (32) corresponding to the location of the upper bed peristome (38) of a bearing hole (31) is made to carry out fitting of the lock ring (40), migration in the lower part of an adjustment shaft (32) is prevented, and only a revolution assembles an adjustment shaft (32) possible in a bearing hole (31). As for the upper bed of an adjustment shaft (32), the slot (41) of a cross-joint form and (42) are prepared. The soffit of a spiral lever (11) is inserted in one slot (41), it connects with the hole (44) of a spiral lever, and the screw-thread hole (45) of an adjustment shaft (32) mutually through a set screw (43), and the pin (46) attached in the right angle is inserted in a spiral lever (11) in the slot on another side (42). Thereby, while an adjustment shaft (32) is hung by the spiral lever (11), a sliding object (16) is hung, a sliding object (16) supports a shoji (2) through a revolving shaft (24) and a connection arm (26), and the shoji (2) is lifted by the keeping member (7).

As an adjustment means of the torque of the torsion spring (15) of a keeping member (7), a coiled form braking spring (47) is looped around in the shape of adhesion, the upper bed (48) inserts in the hole (49) for a tubed part (18), and is combined with the surroundings of the shank (34) of the above-mentioned adjustment shaft (32), and the free condition is made to expect a soffit (50) to the periphery of the flange (51) of the soffit of an adjustment shaft. If the edge of a blade, such as a driver, is inserted in an adjustment shaft (32) at the slotted hole (graphic display abbreviation) of the soffit side and the turning effort of the direction of an arrow head (A) is given, the diameter is expanded, the damping force by friction to an adjustment shaft (32) is canceled, and a braking spring (47) can rotate an adjustment shaft (32) in this direction (A). If the turning effort of an arrow head (A) and hard flow is given to an adjustment shaft (32), the diameter cannot contract, damping force by friction to an adjustment shaft (32) cannot increase, and a braking spring (47) cannot rotate an adjustment shaft (32) in hard flow. That is, the above-mentioned braking spring (47) has the function of an one way clutch. Therefore, if an adjustment shaft (32) is turned in the direction of an arrow head (A), the torque of torsion spring (15) will increase. If the external force of the direction of an arrow head (A) is given with a driver etc. to the soffit (50) of a braking spring (47) when torsion spring (15) is twisted too much, the diameter of this braking spring will be expanded, the damping force of the braking spring to an adjustment shaft (32) will be canceled, and the torque of an intermediary spring [an adjustment shaft (32)] (15) possible [an inversion] will decrease. Thus, the torque of torsion spring can be adjusted so that it may balance with a shoji proper. In addition, arrange two or more stop slots (52) at equal intervals to a flange (51), and the arm (54) which has the projection (53) which engages with this stop slot is combined with the soffit of a rectangular parallelepiped part (17) at one. The case where the torque which balances with the business of various weight will be given to torsion spring (15) if it is constituted so that the click motion of the adjustment shaft (32) can be carried out, When keeping tunes finely, it can be made quantitive by the number of click motion, it is convenient, and since it is accompanied by click motion also when canceling the damping force of a braking spring (47) and reversing an adjustment shaft (32), a torque can be decreased gradually and it is much more convenient.

As a braking means to follow the tilting and to give damping force automatically to an aperture shoji, a lateral slot (55) is formed in the flat surface (22) of the rectangular parallelepiped part (17) of a sliding object (16), opening of the ends is carried out to the flat surface (19) of the both sides of a sliding object, and the amount of [of a slot (55)] center section is further open for free passage to the bearing hole (23). A braking member (56) is included in this slot (55), and a revolution of a revolving shaft (24) makes this braking member follow in a braking location. As a braking member (56) is shown in drawing 7, a rectangular parallelepiped part (57) and the braking part (58) of the **** right triangle which protruded on the both sides at one are provided. A rectangular parallelepiped part (57) has the arc side (59) which fits into a part for the tubed part of a sliding object (16) (18), the arc side (61) which fits into the flange (60) of a revolving shaft (24), and the cam abutment (62) of a water plane. A revolving shaft (24) has the flange (66) of the back end of the cam side (65) formed at the flat surface (64) which cut and lacked a periphery side (63) and its part in common, and a flat surface (64). the cam side (65) of a revolving shaft (24) — the cam abutment (62) of a braking member (56) — biting — a revolution of ***** and a revolving shaft (24) — therefore, a braking member (56) is moved up and down. As for the flange (66) of a revolving shaft (24), only the revolution holds the ***** revolving shaft (24) blown at the tooth back of a cam

abutment (62) possible. A braking part (58) has a braking side (68) vertical to a slanting sliding surface (67). It gears with the slideway (69) of the slant in the inner part of a slot (55), and the above-mentioned sliding surface (67) is extruded to the front, when it goes up, and when descending, it shows back a braking member (56) to it. the above-mentioned braking side (68) — a braking member (56) — a downward location — ** — it does not contact [whether it consists in a way among one sliding surfaces (70) of the sliding slot (20) of a sliding object (16) at the time of intermediary ****, and the flange (21) of a door post (4) is contacted lightly, and] at all. When a braking member (56) goes up, a braking side (68) is forced on the flange (21) of a door post (4), it gives damping force to a sliding object (16), and it is made to stop it. Thereby, when a shoji (2) is made to tilt to a horizontal position from a vertical position, damping force is held once in the horizontal position at a shoji. A locking means is formed in the top rail (72) and (72), and a shoji (1) and (2) prevent that a shoji rotates to the circumference of a revolving shaft (24) by locking of this means, and they permit a revolution of a shoji in release. The locking member (73) as this locking means possesses the helical compression spring (78) which energizes the locking rod (77) inserted possible [sliding in the case (76) which consisted of a case body (74) and a base lid (75) which closes the effective area of that bottom, and this case], and this locking rod (77) in the projection direction. A case body (74) and a base lid (75) are ****ed, it is combined by (79), and they are ****ed, and have fixed to the top rail (72) by (80). A locking rod (77) has a long hole (81), an impression (82), and a tongue (83). A long hole (81) ****s, surrounds (79) and (80), defines the stroke die length of frequent appearance of a locking rod (77), and a spring (78) is incorporated, the end of this spring gears on the wall surface of an impression (82), the other end blows an impression (82) to the bending piece (84) of a base lid (75), and it makes ***** and a locking rod (77) project. The apical surface (85) of a locking rod (77) is formed in an arc, and this apical surface fits into a cylinder (9), and it moves up and down with a shoji (1) and (2) by making the cylinder into a slideway. This locking rod (77) is pinched by the flange (21) of the door post (4) of a sash, and (21), and prevents tilting of a shoji (1) and (2). That is, (83) has projected upwards from the long hole (86) of a case body (74), and retreats a locking rod (77) in a lead-in location. By the retreat, a locking rod (77) moves outside from an engagement location with the flange (21) of the door post (4) of a sash, and enables tilting of a release condition, an intermediary, a shoji (1), and (2). In addition, you may make it fixed [which can perform neither vertical migration nor tilting], and up-and-down medium is [not a soffit but the upper bed of each shoji are sufficient as the center of rotation of a shoji (1) and (2), or] sufficient as an outside shoji (1). It is also good to fall on the others from which the hand of cut of a shoji also breaks down inside outside.

[Translation done.]

* NOTICES *

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- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.**** shows the word which can not be translated.
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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

A drawing shows the example of this invention. Drawing 1 the front view of an aperture, and the 2nd drawing 2 drawing The II-II line sectional view of drawing 1 , The III-III line sectional view of drawing 2 where the inside shoji could pull up drawing 3 in the lifting location, and the part was omitted, The IV-IV line sectional view of drawing 3 in which, as for drawing 4 , an inside shoji shows the condition of having been pushed down inside, drawing 5 and drawing 6 -- a sliding object, the adjustment means of torsion spring, and sliding -- for the perspective view showing an assembly condition with the braking means of the body and its function, and drawing 7 , the perspective view of a braking means and the 8th drawing 8 drawing are [the IX-IX line sectional view of drawing 8 and drawing 10 of the VIII-VIII line sectional view of drawing 5 and drawing 9] X-X-ray sectional views of drawing 3 .

In (1) and (2), an aperture shoji and (3) among drawing a door post and (5) for a sash and (4) A guide rail, (6) and (7) are hung mutually. A member and (8) a cylinder and (10) for a connection pin and (9) A nut, In (11), a spiral lever and (15) a sliding object and (20) for torsion spring and (16) A sliding slot, In (21), a flange and (24) a connection arm and (27) for a revolving shaft and (26) A stile, In (28), a kicking rail and (32) a brake spring and (56) for an adjustment shaft and (47) A braking member, (62) -- a cam abutment and (65) -- a cam side and (67) -- a sliding surface and (68) -- a braking side and (69) -- for a locking member and (76), as for a locking rod and (78), a case and (77) are [a slideway and (72) / a top rail and (73) / a helical compression spring and (83)] tongues.

[Translation done.]

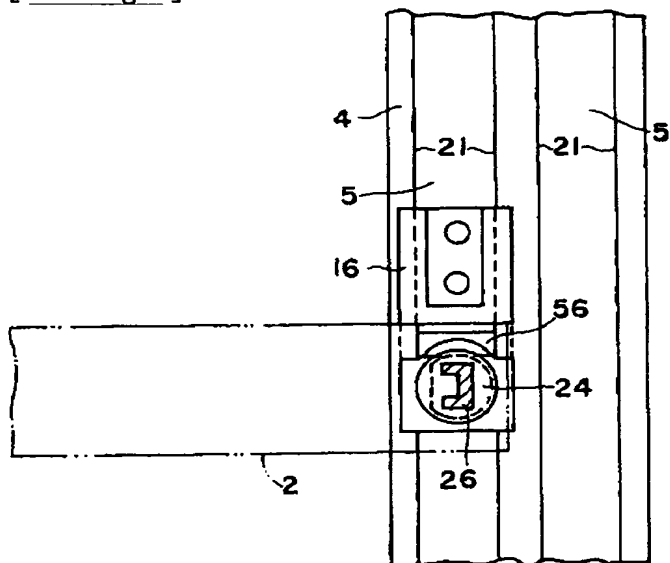
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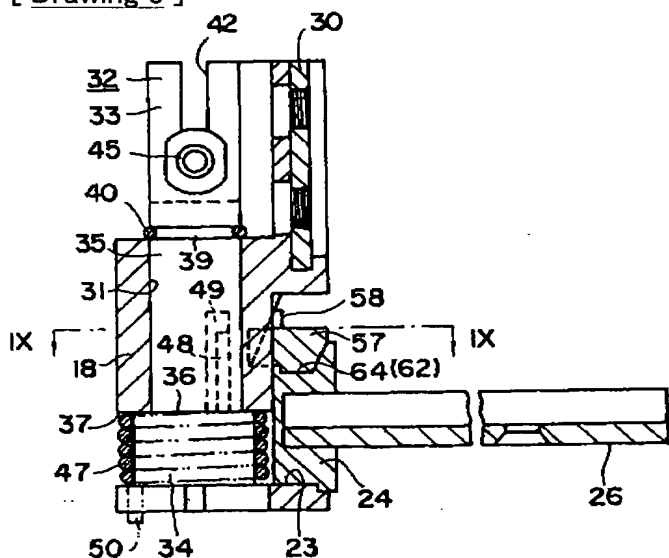
- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
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DRAWINGS

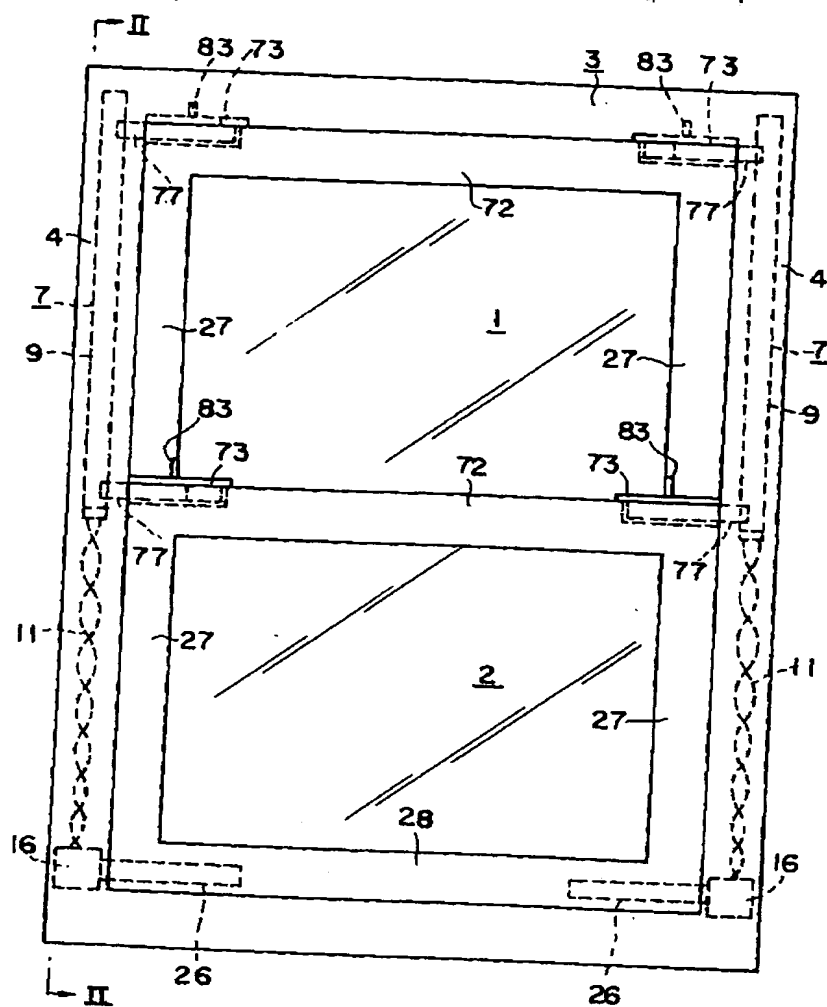
[Drawing 4]



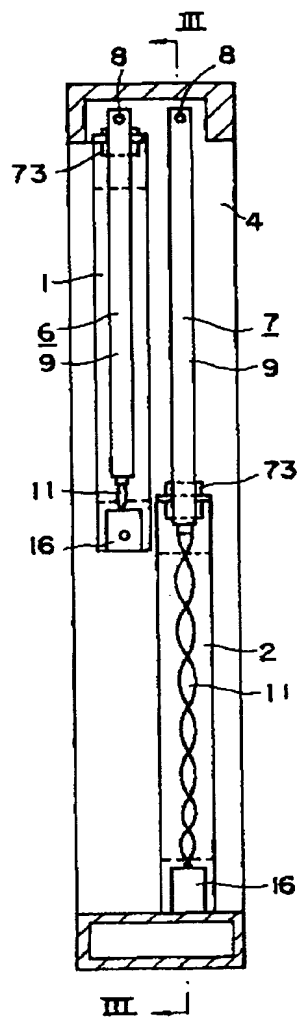
[Drawing 8]



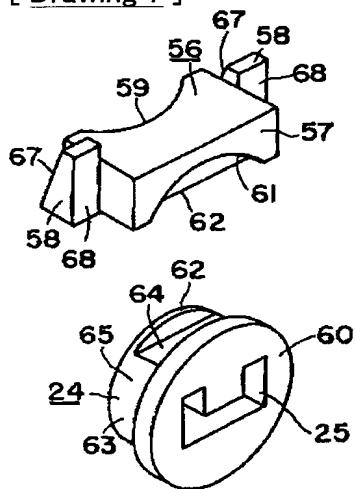
[Drawing 1]



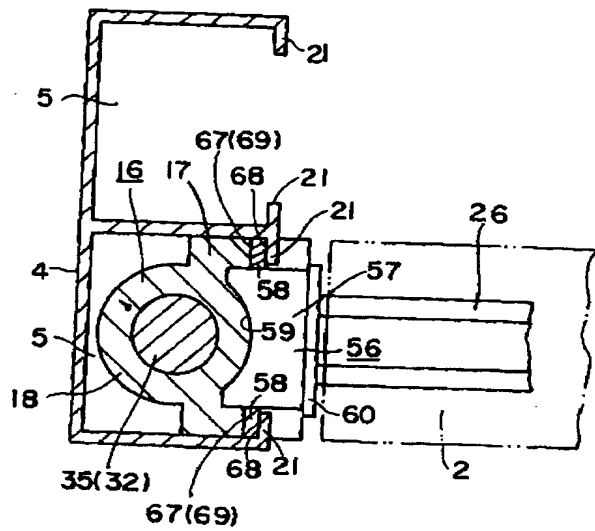
[Drawing 2]



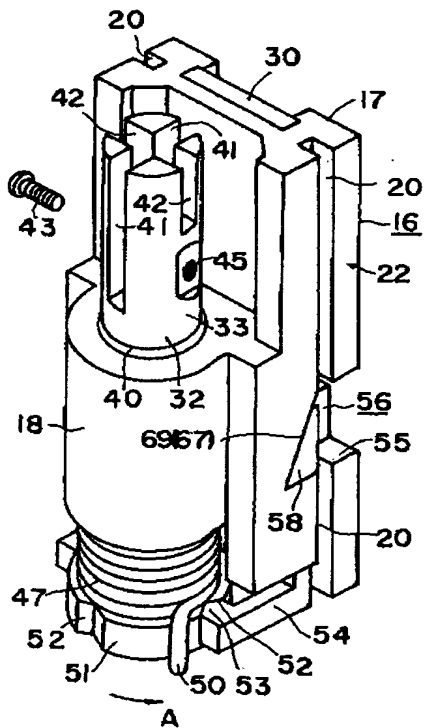
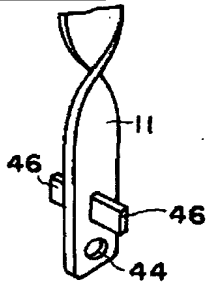
[Drawing 7]



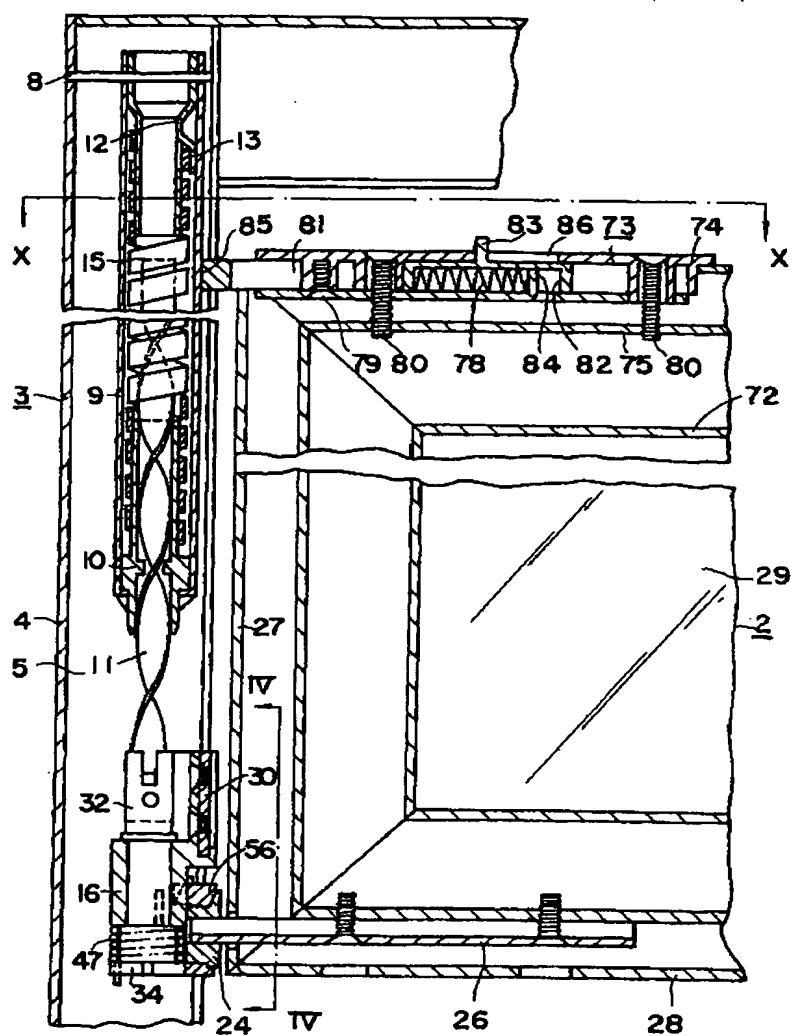
[Drawing 9]



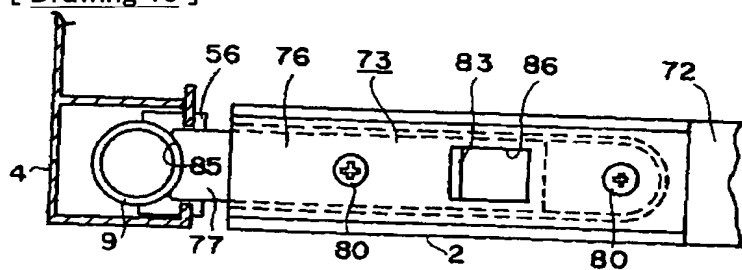
[Drawing 6]



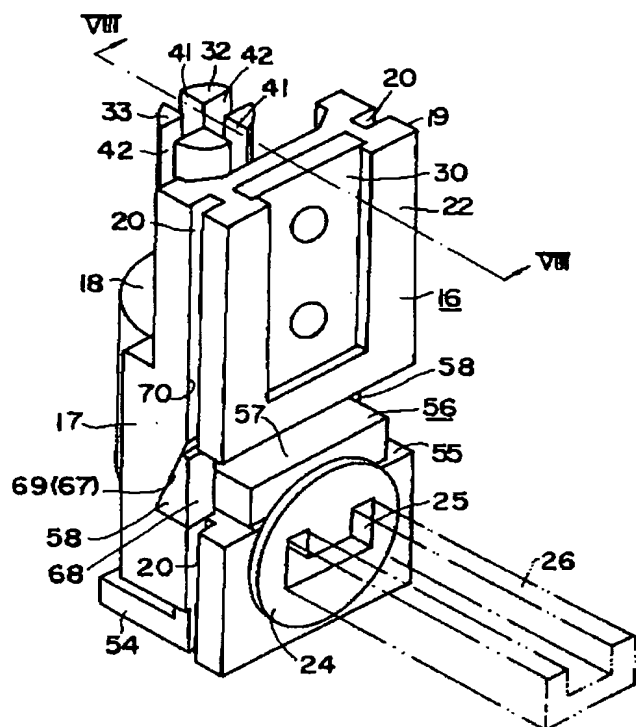
[Drawing 3]



[Drawing 10]



[Drawing 5]



[Translation done.]

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(56)参考文献 特開 昭62-264285(JP, A)

(54)【発明の名称】 傾動可能な上下動窓の釣合装置

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【特許請求の範囲】

【請求項1】窓障子と釣り合つて該障子を任意の位置に静止させる釣合手段と、窓枠の縦枠に沿つて上下可能で上記釣合手段に吊り下げられかつ窓障子を支持する摺動体を具備し、上記摺動体は釣合手段の釣合力を適正に調整する調整手段と窓障子が垂直方向から水平方向に回転された場合に該摺動体を自動的に制動する制動手段が組み込まれている傾動可能な上下動窓の釣合装置。

【請求項2】前記釣合手段は窓枠の縦枠に固定される筒と、該筒に回転のみ可能に連結されたナットと、上記筒内に挿入されて上端が筒にまた下端がナットに各々固着されて上下動の窓障子を任意の位置に静止させるねじりばねと、ねじりばね内に上下動可能に挿入されて上記ナットと螺合し、下降時にナットを介してねじりばねを巻き締め、ねじりばねの巻き戻しにてナットを介して上昇

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され、前記摺動体に連結された螺線杆を具備する請求項1記載の傾動可能な上下動窓の釣合装置。

【請求項3】前記釣合手段の調整手段は前記摺動体に回転のみ可能に組み込まれると共に前記螺線杆に連結されて前記ねじりばねをねじる調整軸と、該調整軸に密着状に巻装されて一端が上記摺動体に固着されてねじりばねの巻き締め方向のみの調整軸の回転を許す制動ばねを具備する請求項2記載の傾動可能な上下動窓の釣合装置。

【請求項4】前記摺動体用の制動手段は上記摺動体に組み込まれると共に窓障子に連結される回転軸と、上記摺動体に組み込まれ窓障子が垂直方向から水平方向に傾動する際の回転軸の回転に追従して摺動体に制動力を与える制動部材を具備する請求項3記載の傾動可能な上下動窓の釣合装置。

【請求項5】前記回転軸はカム面を有し、前記制動部材

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は上記カム面を受けるカム受面を有し、回転軸の回転が制動部材を上下動させ、前記摺動体に斜めの案内面がまた上記制動部材に該案内面上を斜めに摺動する摺動面が各々設けられて上記制動部材をその上下動の際窓枠の縦枠に押しつけられる制動位置とその押しつけが解除される位置の間を横方向にも往復動させる請求項4記載の傾動可能な上下動窓の釣合装置。

【請求項6】窓障子の上框に設けられて該窓障子の傾動を阻止する施錠手段を具備する請求項5記載の傾動可能な上下動窓の釣合装置。

【請求項7】前記施錠手段は、窓障子の上框に固定されるケースと、該ケース内に摺動可能に組み込まれる錠杆と、該錠杆を突出位置に付勢するばねを具備し、上記錠杆は前記釣合部材の筒を案内面として摺動可能に嵌合する面を有し、かつ窓枠の縦枠の案内溝にて挟まれて施錠状態となる請求項6記載の傾動可能な上下動窓の釣合装置。

【発明の詳細な説明】

【産業上の利用分野】

本発明は傾動可能な上下動窓の釣合装置に関するものである。

【従来の技術】

傾動可能な上下動窓において、窓障子用の釣合手段と該手段の釣合力の調整手段を具備する釣合装置と、上記釣合手段と窓障子の傾動の際該窓障子に制動力を与えてその位置に固定する制動手段を具備する釣合装置が知られている。

【発明が解決しようとする課題】

上記従来の釣合装置において、前者は制動手段を欠いているので、釣合手段と釣り合っている窓障子を傾動させるとその釣合がくずれて、吊合手段の引き上げ力が障子の引き下げ力より相対的に大きくなつて障子が上昇し、また後者は調整手段を欠いているので、釣合手段と障子を窓枠内に組み立てた後の釣合手段の調整や使用による釣合手段の力の変化の調整ができないという点で、いずれのものにも問題があつた。

本発明は上下動の窓用の釣合手段の調整を窓障子と釣合手段が窓枠に組立られた状態にてもすることができると共に、窓障子を傾動させた場合に該障子に制動力が自動的に与えられて窓障子の釣合が保たれる便利な釣合装置を提供しようとするものである。

【課題を解決するための手段】

本発明は上記目的を達成するために、窓障子用の釣合手段と、窓枠の縦枠に沿つて上下可能で上記釣合手段に吊り下げられかつ窓障子を支持する摺動体を具備し、上記摺動体を釣合手段の釣合力の調整手段と窓障子の傾動に従つて摺動体を自動的に制動する制動手段が組み込まれている。

【実施例】

以下本発明の実施例につき図面を参照しながら具体的に

説明する。

外側の窓障子(1)と内側の窓障子(2)は窓枠(3)の縦枠(4)の案内溝(5)、(5)に沿つて上下動し、外側窓障子は窓の上部を閉じ、下側窓障子は窓の下部を閉じる。各窓障子(1)、(2)は吊り合い手段として使用される釣合部材(6)、(7)で釣合状態にて縦枠(4)に吊り下げられて任意の位置に静止される。

釣合部材(6)、(7)は内外の障子(1)、(2)に適合するように寸法が異なるのみで構造は同一であるので、内側障子(2)用のものについて主として説明する。他の部材についても同様である。

吊り合い部材(6)、(7)は上下方向に延びて上端が縦枠(4)にピン(8)で連結される筒(9)と、該筒の下端に回転のみ可能に連結されたナット(10)と、上記筒内に上下動可能に挿入されてその下端がナット(10)を螺合状態にて貫通して筒(9)の下端から外方に突き出る螺線杆(11)と、上記筒(9)内にて螺線杆(11)に巻装されて筒(9)にばね止め部材(12)を介して固着された上端(13)とナット(10)に固着された下端(14)を有するねじりばね(15)を具備している。螺線杆(11)はその降下にてナット(10)を回転させてねじりばね(15)を巻き締め、ねじりばね(15)はその巻き戻しにてナット(10)を逆転させて螺線杆(11)を上昇させるように働く。螺線杆(11)を障子(1)、(2)に連結して、ねじりばね(15)に障子(1)、(2)とその最大上昇位置にて釣り合うねじり力を与えておくと、ねじりばね(15)は障子と常に吊り合つて障子を任意の位置に静止させることができ、しかも障子を小さな力で上下させることができる。

摺動体(16)はほぼ直方体の部分(17)と該部分に一体に形成された筒状の部分(18)で主として構成されていて、窓枠の縦枠(4)の案内溝(5)内に摺動可能に組み込まれている。

直方体部分(17)はその両側の互いに平行な平面(19)に形成された上下方向の摺動溝(20)を有し、該摺動溝が縦枠(4)の案内溝(5)の開口面にのぞむフランジ(21)（第9図）に摺動可能に嵌合して摺動体(16)を案内溝(5)に沿つて上下動させる。直方体部分(17)の両側平面(19)に直交する平面(22)はその下方に軸受孔(23)（第8図）を有し、該軸受孔内に回転軸(24)が回転自在に嵌合され、該回転軸の連結孔(25)に連結腕(26)を嵌合させて連結腕と回転軸を一体的に回転するように連結している。連結腕(26)は障子(2)の縦框(27)の下端から下框(28)にわたつて組込んで固着され、障子を回転軸(24)を回転中心として室内側に垂直位置から水平位置まで傾動される。その傾動により、障子(2)のガラス(29)の外側面を室内側にて安全かつ容易に掃除することができる。直方体部分(17)はその上半分に金属製の補強板(30)が組み込まれて、円滑な摺動が得られる合成樹脂製の摺動体(16)を補強している。

筒状部分(18)はその上下方向に貫通した軸受孔(31)（第

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8図)を有し、該軸受孔内にねじりばね(15)用の調整手段として使用される調整軸(32)が回転可能に挿入され、その上端の軸部(33)が筒状部分(18)から上方に突き出ると共に、下端の軸部(34)が筒状部分(18)の下方に突き出している。軸受孔(32)は筒状部分(18)の軸受孔(31)に嵌合する軸部(35)からその上端の軸部(33)までは同一直径であり、軸受孔(18)から下方の軸部(34)は軸受孔(31)より大きな直径に形成されている(第8図)。調整軸(32)を軸受孔(31)内に下方から挿入すると、軸部(34)、(35)間の段部(36)が軸受孔(18)の下端口縁(37)に突き当り調整軸(32)の上方への移動を止め、軸受孔(31)の上端口縁(38)の位置に対応する調整軸(32)の環状溝(39)に止輪(40)を嵌合させて調整軸(32)の下方への移動を阻止して、調整軸(32)を軸受孔(31)内に回転のみ可能に組立てる。調整軸(32)の上端は十字形の溝(41)、(42)が設けられ、一方の溝(41)には螺線杆(11)の下端が挿入されて、止ねじ(43)を螺線杆の孔(44)と調整軸(32)のねじ孔(45)に通して互いに連結し、他方の溝(42)には螺線杆(11)に直角に取りつけられたピン(46)が挿入されて、これにより調整軸(32)は螺線杆(11)に吊り下げられると共に摺動体(16)を吊り下げ、摺動体(16)が回転軸(24)と連結腕(26)を介して障子(2)を支え、障子(2)が釣合部材(7)にて吊り上げられている。

釣合部材(7)のねじりばね(15)のねじり力の調整手段として、上記調整軸(32)の軸部(34)のまわりにコイル状の制動ばね(47)が密着状に巻装され、その上端(48)が筒状部分(18)の孔(49)に差し込んで結合され、下端(50)は調整軸の下端のフランジ(51)の外周に自由状態にのぞませている。調整軸(32)にその下端面の溝孔(図示略)にドライバー等の刃先を差し込んで矢印方向(A)の回転力を与えると、制動ばね(47)はその直径が拡大して調整軸(32)に対する摩擦による制動力が解除され、調整軸(32)を同方向(A)に回転することができる。調整軸(32)に矢印(A)と逆方向の回転力を与えると、制動ばね(47)はその直径が縮小して調整軸(32)に対する摩擦による制動力が増大して調整軸(32)を逆方向には回転することができない。つまり上記制動ばね(47)は一方向クラッチの機能を有する。従って調整軸(32)を矢印方向(A)にまわすと、ねじりばね(15)のねじり力が増大する。ねじりばね(15)が過度にねじられた場合には制動ばね(47)の下端(50)に矢印方向(A)の外力をドライバー等で与えると、該制動ばねの直径が拡大して調整軸(32)に対する制動ばねの制動力が解除され、調整軸(32)が逆転可能となつてばね(15)のねじり力が減少される。このようにしてねじりばねのねじり力を障子と適正に釣り合うように調整することができる。尚フランジ(51)に複数個の係止溝(52)を等間隔に配置し、該係止溝に係合する突起(53)を有する腕(54)を直方体部分(17)の下端に一体に結合して、調整軸(32)がクリック運動できるように構成されると、ねじりばね(15)に種々の重さの用事に釣り合うねじり力を与える

場合や、釣合の微調整する場合にクリック運動の数にて定量的にすることができて便利であり、また制動ばね(47)の制動力を解除して調整軸(32)を逆転させる場合にもクリック運動を伴うのでねじり力を段階的に減少させることができて一層便利である。

窓障子にその傾動に追従して自動的に制動力を与える制動手段として、摺動体(16)の直方体部分(17)の平面(22)に横方向の溝(55)を形成し、その両端が摺動体の両側の平面(19)に開口され、さらに溝(55)の中央部分が軸受孔(23)に連通している。この溝(55)に制動部材(56)が組み込まれ、該制動部材を回転軸(24)の回転が制動位置に従動させる。制動部材(56)は第7図に示すように直方体部分(57)と、その両側に一体に突設された直角三角形の制動部分(58)を具備し、直方体部分(57)は摺動体(16)の筒状部分(18)に嵌合する弧状面(59)と、回転軸(24)のフランジ(60)に嵌合する弧状面(61)と、水平面状のカム受面(62)を有する。回転軸(24)は円周面(63)とその一部を平らに切り欠いた平面(64)で形成されたカム面(65)と、平面(64)の後端のフランジ(66)を有する。回転軸(24)のカム面(65)は制動部材(56)のカム受面(62)にかみ合つて、回転軸(24)の回転に従つて制動部材(56)を上下動させる。回転軸(24)のフランジ(66)はカム受面(62)の背面にかみ合つて回転軸(24)を回転のみ可能に保持している。制動部分(58)は斜めの摺動面(67)と垂直の制動面(68)を有する。上記摺動面(67)は溝(55)の奥の斜めの案内面(69)と噛み合い、制動部材(56)をそれが上昇するとき前方へ押し出し、下降するとき後方へ案内する。上記制動面(68)は制動部材(56)が下降位置をとつてるとき摺動体(16)の摺動溝(20)の一方の摺動面(70)の内方に存して縦棒(4)のフランジ(21)に軽く接触するか全く接触しない。制動部材(56)が上昇すると、制動面(68)は縦棒(4)のフランジ(21)に押しつけられて、摺動体(16)に制動力を与えて停止させる。これにより、障子(2)を垂直位置から水平位置に傾動させた場合に障子に制動力がかかつてその水平位置にて保持される。

障子(1)、(2)はその上框(72)、(72)に施錠手段が設けられ、該手段の施錠にて障子が回転軸(24)まわりに回転するのを阻止し、解錠にて障子の回転を許容する。この施錠手段としての施錠部材(73)はケース本体(74)とその底の開口面を閉じる底蓋(75)で構成されたケース(76)と、該ケース内に摺動可能に挿入された錠杆(77)と、該錠杆(77)を突出方向に付勢する圧縮コイルばね(78)を具備している。ケース本体(74)と底蓋(75)はねじ(79)で結合され、ねじ(80)で上框(72)に固着されている。錠杆(77)は長孔(81)とくぼみ(82)とつまみ(83)を有する。長孔(81)はねじ(79)、(80)をかこんで錠杆(77)の出没の行程長さを定め、くぼみ(82)はばね(78)が組み込まれ該ばねの一端がくぼみ(82)の壁面にかみ合い、他端が底蓋(75)の折り曲げ片(84)にかみ合つて、錠杆(77)を突出させる。錠杆(77)の先端面(85)は弧状に形成され、該先端面が筒

(9)に嵌合してその筒を案内面として障子(1)、(2)と共に上下動する。この錠杆(77)は窓枠の縦枠(4)のフランジ(21)、(21)で挟まれて、障子(1)、(2)の傾動を阻止する。つまり(83)はケース本体(74)の長孔(86)から上方へ突き出ている、錠杆(77)を引込位置に後退させる。その後退にて、錠杆(77)は窓枠の縦枠(4)のフランジ(21)とのかみ合い位置から外側に移動し、解錠状態となつて、障子(1)、(2)の傾動を可能にさせる。

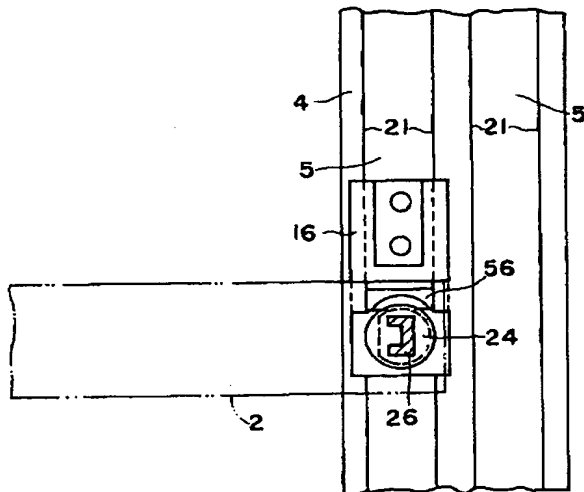
尚外側の障子(1)は上下移動も傾動もできない固定式にしてもよく、障子(1)、(2)の回転中心は各障子の下端でなく上端でもよく、あるいは上下の間でもよい。障子の回転方向も内倒れの他に外倒れでもよい。

〔発明の効果〕

本発明は窓の縦枠に沿つて上下可能で釣合手段で吊り下げられかつ窓障子を支持する摺動体に、上記釣合手段の釣合力を調整する調整手段と、窓障子が垂直方向から水平方向に傾動させた場合に上記摺動体を自動的に制動する制動手段が組み込まれているので、釣合手段の調整を窓障子と釣合手段が窓枠に組み立てられた状態にてもすることができると共に、窓障子を傾動させた場合に該障子に制動力が自動的に与えられて窓障子の釣合が保たれて便利である。

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【第4図】



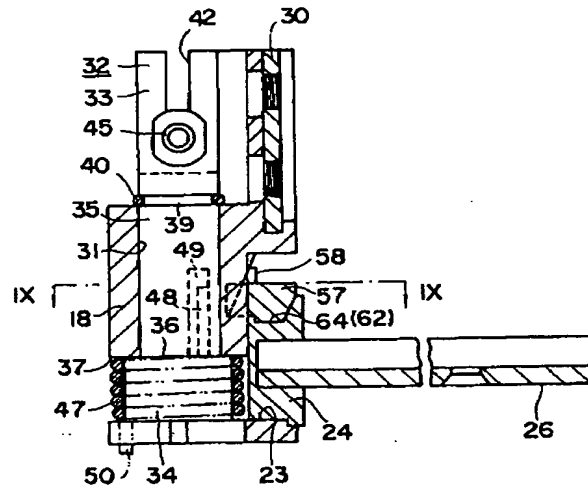
*【図面の簡単な説明】

図面は本発明の実施例を示し、第1図は窓の正面図、第2図は第1図のII-II線断面図、第3図は内側障子が上昇位置に引き上げられて一部が省略された第2図のIII-III線断面図、第4図は内側障子が内側に倒された状態を示す第3図のIV-IV線断面図、第5図と第6図は摺動体とねじりばねの調整手段と摺動体用の制動手段との組立状態を示す斜視図、第7図は制動手段の斜視図、第8図は第5図のVIII-VIII線断面図、第9図は第8図のIX-IX線断面図、第10図は第3図のX-X線断面図である。

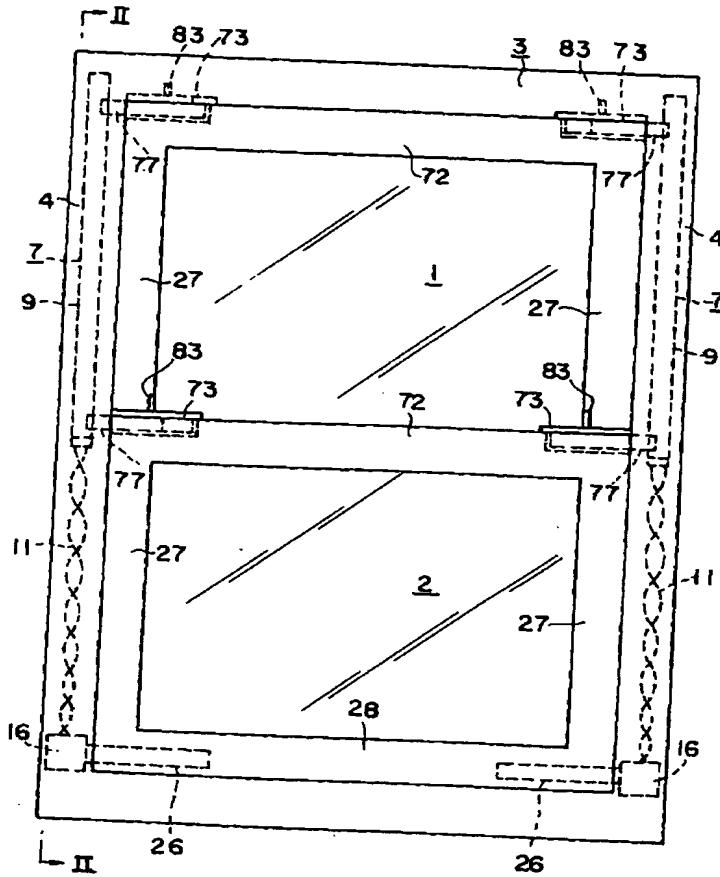
図中(1)と(2)は窓障子、(3)は窓枠、(4)は縦枠、(5)は案内溝、(6)と(7)は吊り合い部材、(8)は連結ピン、(9)は筒、(10)はナット、(11)は螺線杆、(15)はねじりばね、(16)は摺動体、(20)は摺動溝、(21)はフランジ、(24)は回転軸、(26)は連結腕、(27)は縦框、(28)は下框、(32)は調整軸、(47)はブレーキばね、(56)は制動部材、(62)はカム受面、(65)はカム面、(67)は摺動面、(68)は制動面、(69)は案内面、(72)は上框、(73)は施錠部材、(76)はケース、(77)は錠杆、(78)は圧縮コイルばね、(83)はつまみである。

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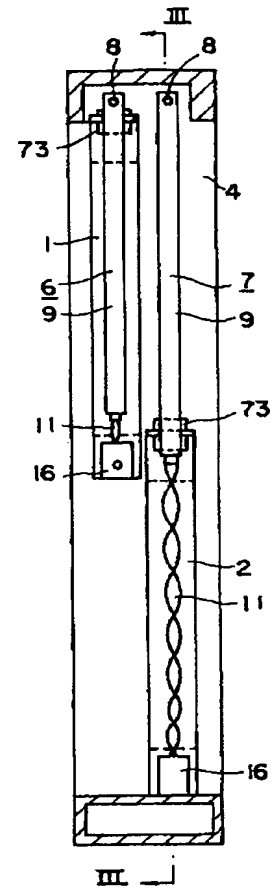
【第8図】



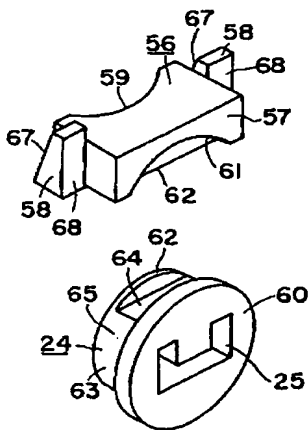
【第1図】



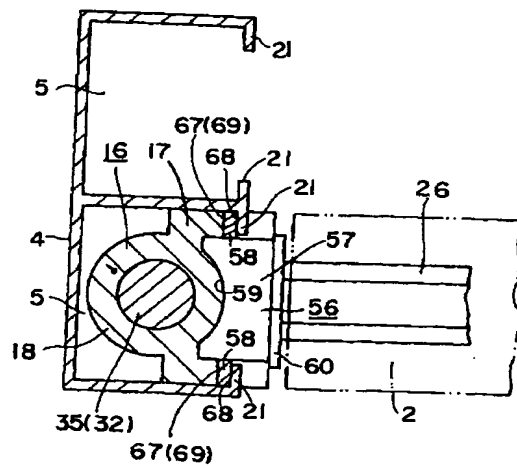
【第2図】



【第7図】



【第9図】



PATENT ABSTRACTS OF JAPAN

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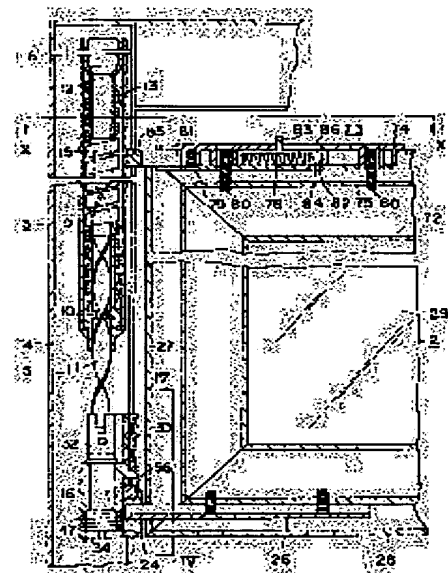
(72)Inventor : NAKANISHI KOICHI
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(54) EQUALIZER OF ELEVATING WINDOW CAPABLE OF INCLINED MOVEMENT

(57)Abstract:

PURPOSE: To prevent the movement of a window during the opening of a window sliding door by providing a means to control the vertical motion thereof automatically to a slider moving up and down along a longitudinal frame as the vertical motion of the window sliding door when the window sliding door is turned horizontally.

CONSTITUTION: A brake member 56 is provided to a slider 16 moving up and down along a longitudinal frame 4 by equalling a window sliding door 2 capable of moving up and down and the slider. A coupling arm 26 is fixed to the lower part of the window sliding door 2 and, at the same time, one end thereof is fixed to a rotary shaft 24 connected to the brake member 56. When the window sliding door 2 is turned in the horizontal direction from the vertical direction to open, the slider 16 is automatically braked. According to the constitution, in the event the window sliding door 2 is opened, a window can be so designed that it does not move up and down.



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⑭ 発明の名称 傾動可能な上下動窓の釣合装置

⑰ 特 願 平1-301046

⑱ 出 願 平1(1989)11月20日

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明 細 書

1 発明の名称

傾動可能な上下動窓の釣合装置

2 特許請求の範囲

1. 窓障子と釣り合つて該障子を任意の位置に静止させる釣合手段と、窓枠の縦枠に沿つて上下可能で上記釣合手段に吊り下げられかつ窓障子を支持する摺動体を具備し、上記摺動体は釣合手段の釣合力を適正に調整する調整手段と窓障子が垂直方向から水平方向に回転された場合に該摺動体を自動的に制動する制動手段が組み込まれている傾動可能な上下動窓の釣合装置。
2. 前記釣合手段は窓枠の縦枠に固定される筒と、該筒に回転のみ可能に連結されたナットと、上記筒内に挿入されて上端が筒にまた下端がナットに各々固着されて上下動の窓障子を任意の位置に静止させるねじりばねと、ねじりばね内に上下動可能に挿入されて上記ナットと螺合し、下降時にナットを介してねじりばねを巻き締め、ねじりばねの巻き戻しにてナットを介して上昇

され、前記摺動体に連結された螺線杆を具備する請求項1記載の傾動可能な上下動窓の釣合装置。

3. 前記釣合手段の調整手段は前記摺動体に回転のみ可能に組み込まれると共に前記螺線杆に連結されて前記ねじりばねをねじる調整軸と、該調整軸に密着状に巻装されて一端が上記摺動体に固着されてねじりばねの巻き締め方向のみの調整軸の回転を許す制動ばねを具備する請求項2記載の傾動可能な上下動窓の釣合装置。
4. 前記摺動体用の制動手段は上記摺動体に組み込まれると共に窓障子に連結される回転軸と、上記摺動体に組み込まれ窓障子が垂直方向から水平方向に傾動する際の回転軸の回転に追従して摺動体に制動力を与える制動部材を具備する請求項3記載の傾動可能な上下動窓の釣合装置。
5. 前記回転軸はカム面を有し、前記制動部材は上記カム面を受けるカム受面を有し、回転軸の回転が制動部材を上下動させ、前記摺動体に斜めの案内面がまた上記制動部材に該案内面上を

斜めに摺動する摺動面が各々設けられて上記制動部材をその上下動の際窓枠の縦枠に押しつけられる制動位置とその押しつけが解除される位置の間を横方向にも往復動させる請求項4記載の傾動可能な上下動窓の釣合装置。

6. 窓障子の上框に設けられて該窓障子の傾動を阻止する施錠手段を具備する請求項5記載の傾動可能な上下動窓の釣合装置。

7. 前記施錠手段は、窓障子の上框に固定されるケースと、該ケース内に摺動可能に組み込まれる錠杆と、該錠杆を突出位置に付勢するばねを具備し、上記錠杆は前記釣合部材の筒を案内面として摺動可能に嵌合する面を有し、かつ窓枠の縦枠の案内溝にて挟まれて施錠状態となる請求項6記載の傾動可能な上下動窓の釣合装置。

3 発明の詳細な説明

〔産業上の利用分野〕

本発明は傾動可能な上下動窓の釣合装置に関するものである。

〔従来技術〕

ものである。

〔課題を解決するための手段〕

本発明は上記目的を達成するために、窓障子用の釣合手段と、窓枠の縦枠に沿って上下可能で上記釣合手段に吊り下げられかつ窓障子を支持する摺動体を具備し、上記摺動体に釣合手段の釣合力の調整手段と窓障子の傾動に従って摺動体を自動的に制動する制動手段が組み込まれている。

〔実施例〕

以下本発明の実施例につき図面を参照しながら具体的に説明する。

外側の窓障子(1)と内側の窓障子(2)は窓枠(3)の縦枠(4)の案内溝(5)、(5)に沿って上下動し、外側窓障子は窓の上部を閉じ、下側窓障子は窓の下部を閉じる。各窓障子(1)、(2)は吊り合い手段として使用される釣合部材(6)、(7)で釣合状態にて縦枠(4)に吊り下げられて任意の位置に静止される。

釣合部材(6)、(7)は内外の障子(1)、(2)に適合するように寸法が異なるのみで構造は同一であるので、内側障子(2)用のものについて主として説明する。

傾動可能な上下動窓において、窓障子用の釣合手段と該手段の釣合力の調整手段を具備する釣合装置と、上記釣合手段と窓障子の傾動の際該窓障子に制動力を与えてその位置に固定する制動手段を具備する釣合装置が知られている。

〔発明が解決しようとする課題〕

上記従来の釣合装置において、前者は制動手段を欠いているので、釣合手段と釣り合っている窓障子を傾動させるとその釣合がくずれて、吊合手段の引き上げ力が障子の引き下げ力より相対的に大きくなつて障子が上昇し、また後者は調整手段を欠いているので、釣合手段と障子を窓枠内に組み立た後の釣合手段の調整や使用による釣合手段の力の変化の調整ができないという点で、いずれのものにも問題があつた。

本発明は上下動の窓用の釣合手段の調整を窓障子と釣合手段が窓枠に組立られた状態にてもすることができると共に、窓障子を傾動させた場合に該障子に制動力が自動的に与えられて窓障子の釣合が保たれる便利な釣合装置を提供しようとする

他の部材についても同様である。

吊り合い部材(6)、(7)は上下方向に延びて上端が縦枠(4)にピン(8)で連結される筒(9)と、該筒の下端に回転のみ可能に連結されたナット10と、上記筒内に上下動可能に挿入されてその下端がナット10を螺合状態にて貫通して筒(9)の下端から外方に突き出る螺線杆11と、上記筒(9)内にて螺線杆11に巻装されて筒(9)にばね止め部材12を介して固着された上端13とナット10に固着された下端14を有するねじりばね15を具備している。螺線杆11はその降下にてナット10を回転させてねじりばね15を巻き締め、ねじりばね15はその巻き戻しにてナット10を逆転させて螺線杆11を上昇させるように働く。螺線杆11を障子(1)、(2)に連結して、ねじりばね15に障子(1)、(2)とその最大上昇位置にて釣り合うねじり力を与えておくと、ねじりばね15は障子と常に吊り合つて障子を任意の位置に静止させることができ、しかも障子を小さな力で上下させることができる。

摺動体16はほぼ直方体の部分17と該部分に一体

に形成された筒状の部分4で主として構成されていて、窓枠の縦枠(4)の案内溝(5)内に摺動可能に組み込まれている。

直方体部分7はその両側の互いに平行な平面8に形成された上下方向の摺動溝8を有し、該摺動溝が縦枠(4)の案内溝(5)の開口面にのぞむフランジ9(第9図)に摺動可能に嵌合して摺動体8を案内溝(5)に沿って上下動させる。直方体部分7の両側平面8に直交する平面9はその下方に軸受孔10(第8図)を有し、該軸受孔内に回転軸11が回転自在に嵌合され、該回転軸の連結孔12に連結腕13を嵌合させて連結腕と回転軸を一体的に回転するように連結している。連結腕13は障子(2)の縦枠14の下端から下枠15にわたって組込んで固着され、障子を回転軸11を回転中心として室内側に垂直位置から水平位置まで傾動される。その傾動により、障子(2)のガラス16の外側面を室内側に安全かつ容易に掃除することができる。直方体部分7はその上半分に金属製の補強板17が組み込まれて、円滑な摺動が得られる合成樹脂製の摺動体8を補強

他方の溝18には螺線杆19に直角に取りつけられたピン20が挿入されてる。これにより調整軸21は螺線杆19に吊り下げられると共に摺動体8を吊り下げ、摺動体8が回転軸11と連結腕13を介して障子(2)を支え、障子(2)が釣合部材(7)にて吊り上げられている。

釣合部材(7)のねじりばね22のねじり力の調整手段として、上記調整軸21の軸部23のまわりにコイル状の制動ばね24が密着状に巻装され、その上端25が筒状部分4の孔26に差し込んで結合され、下端26は調整軸の下端のフランジ27の外周に自由状態にのぞませている。調整軸21にその下端面の溝孔(図示略)にドライバー等の刃先を差し込んで矢印方向(A)の回転力を与えると、制動ばね24はその直径が拡大して調整軸21に対する摩擦による制動力が解除され、調整軸21を同方向(A)に回転することができる。調整軸21に矢印(A)と逆方向の回転力を与えると、制動ばね24はその直径が縮小して調整軸21に対する摩擦による制動力が増大して調整軸21を逆方向には回転することができない。つ

ている。

筒状部分4はその上下方向に貫通した軸受孔10(第8図)を有し、該軸受孔内にねじりばね22用の調整手段として使用される調整軸21が回転可能に挿入され、その上端の軸部23が筒状部分4から上方に突き出ると共に、下端の軸部24が筒状部分4の下方に突き出ている。調整軸21は筒状部分4の軸受孔10に嵌合する軸部25からその上端の軸部23までは同一直径であり、軸受孔10から下方の軸部24は軸受孔10より大きな直径に形成されている(第8図)。調整軸21を軸受孔10内に下方から挿入すると、軸部24、25間の段部26が軸受孔10の下端口縁27に突き当って調整軸21の上方への移動を止め、軸受孔10の上端口縁28の位置に対応する調整軸21の環状溝29に止輪30を嵌合させて調整軸21の下方への移動を阻止して、調整軸21を軸受孔10内に回転のみ可能に組立てる。調整軸21の上端は十字形の溝31、32が設けられ、一方の溝31には螺線杆19の下端が挿入されて、止ねじ33を螺線杆の孔34と調整軸21のねじ孔35に通して互いに連結し、

まり上記制動ばね24は一方方向クラッチの機能を有する。従つて調整軸21を矢印方向(A)にまわすと、ねじりばね22のねじり力が増大する。ねじりばね22が過度にねじられた場合には制動ばね24の下端36に矢印方向(A)の外力をドライバー等で与えると、該制動ばねの直径が拡大して調整軸21に対する制動ばねの制動力が解除され、調整軸21が逆転可能となつてばね22のねじり力が減少される。このようにしてねじりばねのねじり力を障子と適正に釣り合うように調整することができる。尚フランジ27に複数個の係止溝37を等間隔に配置し、該係止溝に係合する突起38を有する腕39を直方体部分7の下端に一体に結合して、調整軸21がクリック運動できるように構成されると、ねじりばね22に種々の重さの障子に釣り合うねじり力を与える場合や、釣合の微調整する場合にクリック運動の数にて定量的にすることができて便利であり、また制動ばね24の制動力を解除して調整軸21を逆転させる場合にもクリック運動を伴うのでねじり力を段階的に減少させることができて一層便利である。

窓障子にその傾動に追従して自動的に制動力を与える制動手段として、摺動体10の直方体部分11の平面12に横方向の溝13を形成し、その両端が摺動体の両側の平面14に開口され、さらに溝13の中央部分が軸受孔15に連通している。この溝13に制動部材16が組み込まれ、該制動部材16を回転軸17の回転が制動位置に従動させる。制動部材16は第7図に示すように直方体部分11と、その両側に一体に突設されたほぼ直角三角形の制動部分18を具備し、直方体部分11は摺動体10の筒状部分19に嵌合する弧状面20と、回転軸17のフランジ21に嵌合する弧状面22と、水平面状のカム受面23を有する。回転軸17は円周面24とその一部を平らに切り欠いた平面25で形成されたカム面26と、平面26の後端のフランジ27を有する。回転軸17のカム面26は制動部材16のカム受面23にかみ合つて、回転軸17の回転に従つて制動部材16を上下動させる。回転軸17のフランジ27はカム受面23の背面にかみ合つて回転軸17を回転のみ可能に保持している。制動部分18は斜めの摺動面28と垂直の制動面29を有する。

る。錠杆29は長孔30とくぼみ31とつまみ32を有する。長孔30はねじ33、34をかこんで錠杆29の出没の行程長さを定め、くぼみ31はばね35が組み込まれ該ばねの一端がくぼみ31の壁面にかみ合い、他端が底蓋36の折り曲げ片37にかみ合つて、錠杆29を突出させる。錠杆29の先端面38は弧状に形成され、該先端面が筒39に嵌合してその筒を案内面として障子(1)、(2)と共に上下動する。この錠杆29は窓枠の縦枠(4)のフランジ40、41で挟まれて、障子(1)、(2)の傾動を阻止する。つまみ32はケース本体42の長孔43から上方へ突き出ていて、錠杆29を引込位置に後退させる。その後退にて、錠杆29は窓枠の縦枠(4)のフランジ40とのかみ合い位置から外側に移動し、解錠状態となつて、障子(1)、(2)の傾動を可能にさせる。

尚外側の障子(1)は上下移動も傾動もできない固定式にしてもよく、障子(1)、(2)の回転中心は各障子の下端でなく上端でもよく、あるいは上下の間でもよい。障子の回転方向も内倒れの他に外倒れでもよい。

上記摺動面13は溝13の奥の斜めの案内面14と噛み合い、制動部材16をそれが上昇するとき前方へ押し出し、下降するとき後方へ案内する。上記制動面13は制動部材16が下降位置をとつてるとき摺動体10の摺動溝13の一方の摺動面14の内方に存して縦枠(4)のフランジ40に軽く接触するか全く接触しない。制動部材16が上昇すると、制動面13は縦枠(4)のフランジ40に押しつけられて、摺動体10に制動力を与えて停止させる。これにより、障子(2)を垂直位置から水平位置に傾動させた場合に障子に制動力がかかつてその水平位置にて保持される。

障子(1)、(2)はその上框44、45に施錠手段が設けられ、該手段の施錠にて障子が回転軸17まわりに回転するのを阻止し、解錠にて障子の回転を許容する。この施錠手段としての施錠部材46は47とその底の開口面を閉じる底蓋48で構成されたケース49と、該ケース内に摺動可能に挿入された錠杆50と、該錠杆50を突出方向に付勢する圧縮コイルばね51を具備している。ケース本体49と底蓋48はねじ52で結合され、ねじ52で上框44に固着されてい

〔発明の効果〕

本発明は窓の縦枠に沿つて上下可能で釣合手段で吊り下げられかつ窓障子を支持する摺動体に、上記釣合手段の釣合力を調整する調整手段と、窓障子が垂直方向から水平方向に傾動させた場合に上記摺動体を自動的に制動する制動手段が組み込まれているので、釣合手段の調整を窓障子と釣合手段が窓枠に組み立てられた状態にてもすることができると共に、窓障子を傾動させた場合に該障子に制動力が自動的に与えられて窓障子の釣合が保たれて便利である。

4 図面の簡単な説明

図面は本発明の実施例を示し、第1図は窓の正面図、第2図は第1図のⅡ-Ⅱ線断面図、第3図は内側障子が上昇位置に引き上げられて一部が省略された第2図のⅢ-Ⅲ線断面図、第4図は内側障子が内側に倒された状態を示す第3図のⅣ-Ⅳ線断面図、第5図と第6図は摺動体とねじりばねの調整手段と摺動体用の制動手段との組立状態を示す斜視図、第7図は制動手段の斜視図、第8図

は第5図のⅦ-Ⅶ線断面図、第9図は第8図のⅠ-Ⅰ線断面図、第10図は第8図のⅡ-Ⅱ線断面図である。

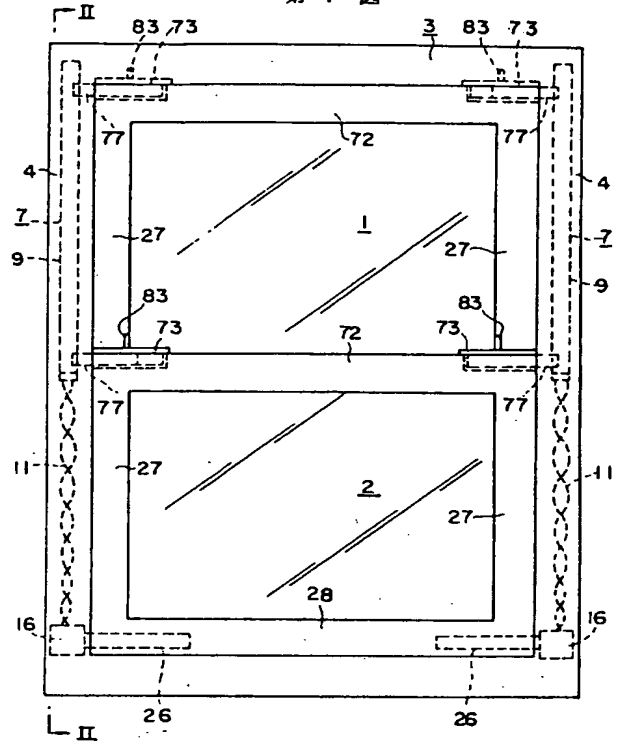
図中(1)と(2)は窓障子、(3)は窓枠、(4)は縦枠、(5)は案内溝、(6)と(7)は吊り合い部材、(8)は連結ピン、(9)は筒、(10)はナット、(11)は螺線杆、(12)はねじりばね、(13)は摺動体、(14)は摺動溝、(15)はフランジ、(16)は回転軸、(17)は連結腕、(18)は縦框、(19)は下框、(20)は調整軸、(21)はブレーキばね、(22)は制動部材、(23)はカム受面、(24)はカム面、(25)は摺動面、(26)は制動面、(27)は案内面、(28)は上框、(29)は施錠部材、(30)はケース、(31)は錠杆、(32)は圧縮コイルばね、(33)はつまみである。

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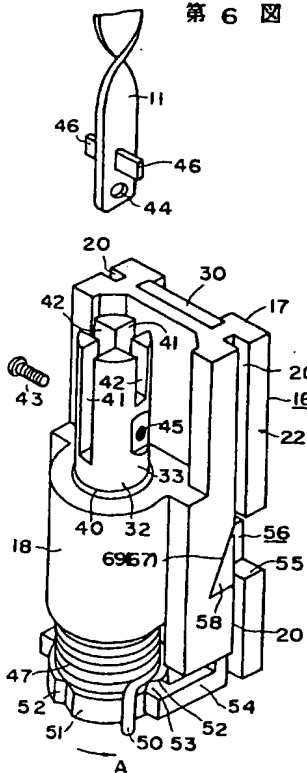
代理人 辨理士 井 上 清 子

代理人 辨理士 亀 川 義 示

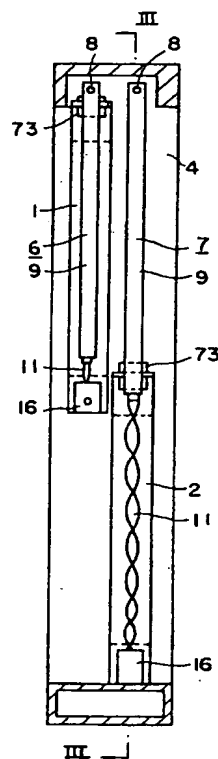
第1図



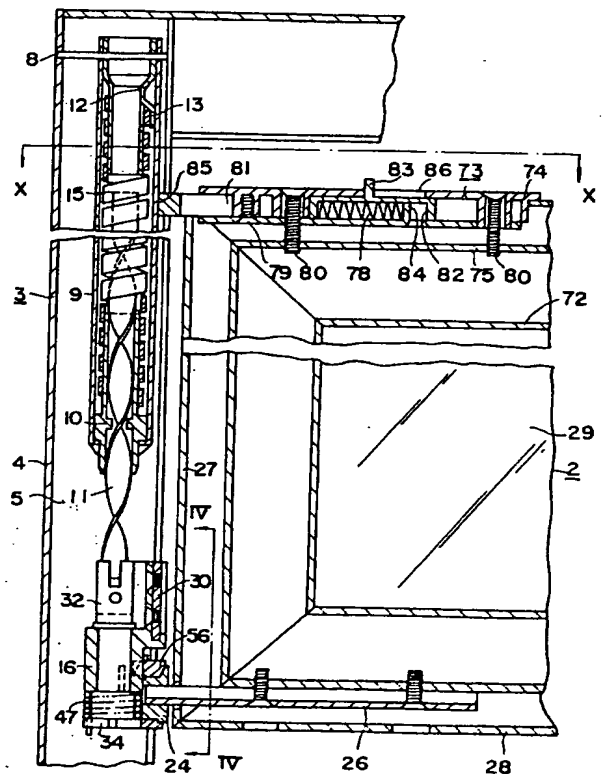
第6図



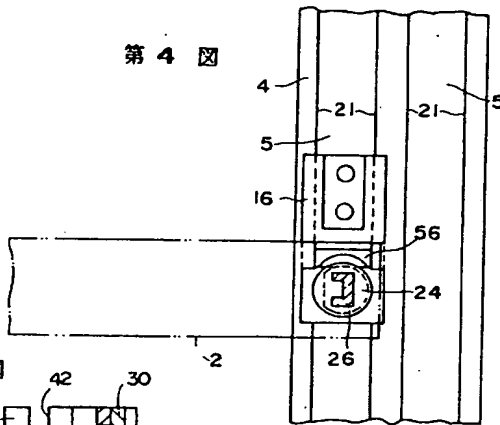
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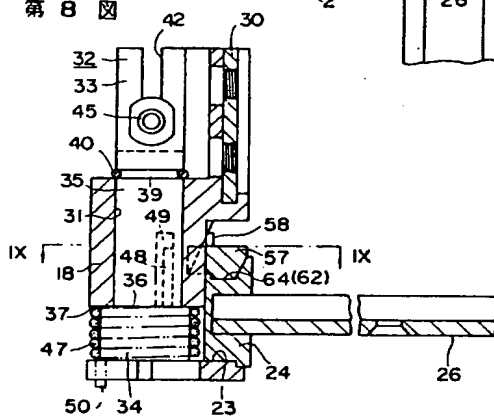
第3図



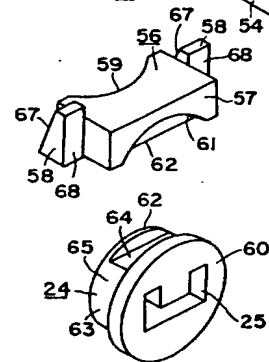
第 4 図



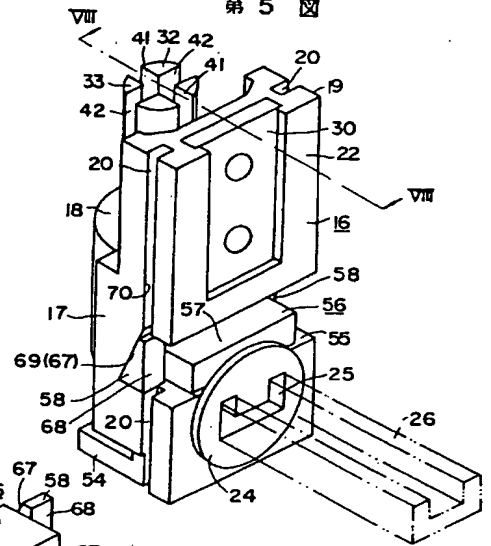
第 8 図



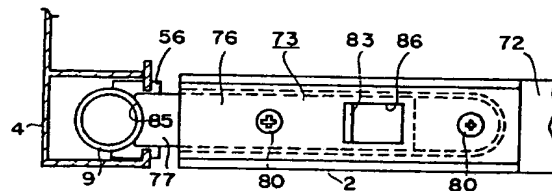
第 7 図



第 5 図



第 10 図



第 9 図

